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(71)Applicant : **TOYOTA MOTOR CORP**
AGENCY OF IND SCIENCE & TECHNOL

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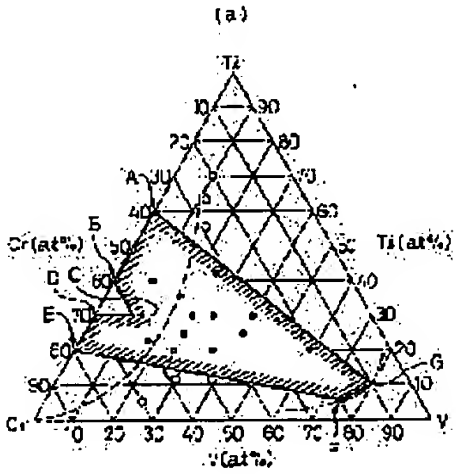
AKIBA ETSUO

(54) HYDROGEN STORAGE ALLOY AND ITS PRODUCTION

(57)Abstract:

PROBLEM TO BE SOLVED: To produce hydrogen storage alloy excellent in activation and the quantity of hydrogen to be occluded and discharged by enabling the control of a fine structure formed by spinodal decomposition for improving the flatness of the discharge equilibrium pressure in the region of practical temp. and pressure in particular.

SOLUTION: This hydrogen storage alloy is the one having a compsn. expressed by the general formula of TixCryVz [where (x), (y) and (z) and denotes by atomic %, and x+y+z=100), is in the range in which body-centered cubic structural phases appear and also spinodal decomposition occurs with the exception of C14 (one kind of representative structure of Laves phases- MgZn2 type crystal structure) single phase regions, composed of a regular periodic structure formed by spinodal decomposition, and whose apparent lattice constant is regulated to 0.2950 to 0.3060nm. The producing method is composed of solution treatment at 700 to 1500°C for 1min to 100hr and cooling treatment and/or aging treatment at 350 to 1200°C for 1min to 200hr.



(b)

	Ti	Cr	V
A	60	40	0
H	40	60	0
C	30	60	10
D	90	10	0
E	20	80	0
F	5	20	75
G	10	30	60

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(71)Applicant : **JAPAN STEEL WORKS LTD:THE**

(72)Inventor : **KABUTOMORI TOSHIKI**
TAKAHASHI TOSHIO
WAKIZAKA YUICHI

(54) HYDROGEN STORAGE MATERIAL

(57)Abstract:

PURPOSE: To obtain a hydrogen storage material capable of efficiently absorbing and desorbing hydrogen at ordinary temps. and capable of occluding a large amt. of hydrogen.

CONSTITUTION: The material is expressed by Ti100-x-y-zCrxAyBz, where A is 1 kind among V, Nb, Mo, Ta and W, B is 2 kinds among Zr, Mn, Fe, Co, Ni and Cu, 0<x<70, 0<y<80, 0<z<20 and 0<x+y+z<100. The material has a body-centered cubic structure. The lattice constant (a) of the crystal is limited to conform to 2.95Å<a<3.10Å, and the radius of the virtual sphere in contact respectively with two metals at the center of the body of adjacent unit lattices and with two metals at the adjacent corners between the body centers is controlled to 0.33Å. Consequently, a large amt. of hydrogen is occluded at ordianry temps., and hydrogen is economically and practically stored and transported.

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